

Tempe Fire Department Policies and Procedures

Self Contained Breathing Apparatus

205.01

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PURPOSE

It is the policy of the Tempe Fire Department that all personnel expected or likely to respond to, and function in, areas defined as "immediate dangerous to life and health" (IDLH), shall be equipped with, and trained in the proper use and maintenance of self-contained breathing apparatus. ~~of atmospheric contamination, shall be equipped with, and trained in, the proper use and maintenance of the self-contained breathing apparatus (SCBA).~~

Each department member that is SCBA user certified, and assigned an SCBA shall be accountable for one SCBA and one personal issue facepiece. Each member shall check that SCBA and facepiece and place them in a "ready" condition at the beginning of each shift and after each use, or at any other time it may be necessary to render the equipment in a ready state of condition.

SCBA INSTRUCTIONS

"Ready" State of Condition for SCBA

- A. Check the gauge on the air bottle cylinder. The gauge should have 4300 2700 psi minimum. (4300 to 4500 2700 to 3000 is acceptable).
- B. Check the cylinder air bottle for visible damage
- C. Heads Up Display (HUD)

OPEN the cylinder valve fully to pressurize the system, and then CLOSE the cylinder valve. Look through the facepiece lens at the LED panel. All LED's must illuminate at the top of the receiver. The receiver must go through all LED light patterns when the system is pressurized.

- Four green LED's for 20 seconds, steady ON
- Three green LED's for 20 seconds, steady ON
- Two yellow LED's for 30 seconds, FLASHING
- One red LED FLASHING
- Yellow LED for LOW BATTERY

~~Push the white alarm button on the side of the Redundant Alarm Gauge 3 times in rapid succession. This will cycle the pre-pressure check:~~

~~Audible tone with 3 beeps
Green lights flash
Red lights flash
Background of gauge lights up~~

- D. Open the cylinder valve fully.

~~Turn the air bottle valve on. Listen for the 3 beeps of the Redundant Alarm Gauge, the Low Pressure Bell, and any air leaks. The Dragonfly Pass Device should display 2 green lights flashing slowly. Check male Quick-fill fitting for leaks and dust cover.~~

- E. INTEGRATED COMPUTER MODULE (ICM OR PASS)

The PASS function uses red and green light emitting diodes (LED's) to display its status visually:

- GREEN LED's start to flash when the cylinder valve is opened and shows that the device is operational
 - RED LED's flash slowly when the device is in pre-alarm; LED's flash rapidly when the device is in full alarm.
- F. Check hoses and couplings for wear and leaks. (A faulty or missing "O" ring on the coupling nut to the cylinder will cause air leaks.) The assembly coupling nut should be hand tight to the bottle valve outlet. Check the Quick-fill hose for damage, wear and protective dust covers.
- ~~Check hoses and couplings for wear and leaks. (Faulty or missing "O" ring on coupling to bottle causes air leakage). Regulator hose coupling should be hand tightened only to the bottle valve outlet. Check Quick fill hose for damage, wear and protective dust covers.~~
- G. Check harness for wear.
- H. Check your facepiece for cracks, tears and wear. Check the netting and headstraps for elasticity and wear. ~~and buckles are in place~~
- I. Don SCBA and adjust straps. Remember to secure the WAIST straps prior to the SHOULDER straps as the SCBA is designed to rest on the wearers hips.
- J. Put your facepiece on and secure head straps without the mask mounted regulator (MMR) attached. Place your hand over the exhalation valve, inhale sharply and check for proper seal. Remove hand from the exhalation valve and hold the mask firmly to your face, inhale and exhale sharply to check the exhalation valve for proper opening and closing. ~~Check for seal: Check exhalation valve for proper opening and closing.~~
- K. Connect the MMR to the mask. Open the red bypass valve counter clockwise and check the operation.
- ~~Activate the PASS device by pushing the red button in the center of the Dragonfly. Note the high audible tone and the three rapid flashing red lights. Push either of the side reset buttons twice in rapid succession to put the PASS into normal operation; 2 green lights with slow flash. Stand motionless and check the operation of the automatic PASS function. (Pre-alarm in 18 seconds with 3 separate increasing audible alarms in approximately 10 seconds, then to full alarm). Reset PASS with either side reset button by pushing twice.~~
- L. ~~Push the two slide buttons on the MMR and remove from the mask. Check the Redundant Alarm Gauge back light by pushing the white side alarm button two times in rapid succession.~~
- M. Turn the cylinder valve off. Hold your breath and hit the shut off button. Open the red bypass valve counter clockwise until it locks and check the operation. Inhale sharply.
- N. Push the shut off button and remove facepiece.
- O. ~~Turn the bottle valve off.~~ Crack the bypass valve slowly to bleed off pressure until the HUD system or the ICM gauge drops below 1175 psig. The HUD system will illuminate; the ICM gauge and the audilarm assembly will sound. The HUD display will automatically turn off after 60 seconds. When the pressure falls below 200 psi, turn the ICM off by pressing the yellow reset button TWICE.
- P. Remove the SCBA and place the mask in the protective pouch. Push the shut off button to bleed off the air in the hose line. The low air warning bell should ring at 590—510 psi. This is 25% of the total supply. The low air warning bell will stop ringing when the air pressure drops to below 200 psi. The Redundant Alarm Gauge will also sound until reset by pushing the white alarm button on the side twice in rapid succession. Listen for a long beep.

Q. ~~Store the SCBA in the “ready” condition with the MMR attached to the bracket on the belt or the mask. Reset the Dragonfly by pressing either side reset button twice. Listen for a “bee-bop-bop”. All lights should now be off.~~

R. ~~Take the SCBA off and put mask in protective pouch.~~

S. ~~Store SCBA in the rack in the “ready” condition with the regulator attached to the bracket on the belt or the mask.~~

~~Note: The Dragonfly uses a 9V battery. The Redundant Alarm Gauge uses 2 Lithium 3V CR2 batteries. The operation of the Dragonfly PASS will be affected by a low battery. The Redundant Alarm Gauge will “chirp” with a low battery. Both should be changed by a SCBA technician.~~

CARE, USE AND MAINTENANCE

Batteries

Replacing the Batteries in the ICM x Unit

1. Loosen the four screws from the battery compartment; remove the battery cover
2. Insert four AA batteries following diagrams inside battery compartment.
3. Verify that the battery cover gasket is in place and free from damage and debris and is not twisted in the gasket retention groove in the battery cover.
4. Before replacing the battery cover, be sure that the rubber cover on the ICM Tx Unit is properly engaged with the plastic housing. The rubber cover has barbs that hold it firmly against the plastic housing.
5. Replace the cover. Make certain that the battery cover is oriented properly. Align the angled tabs near the battery cover screws with the battery cover. Check that the rubber cover is not bunched or pinched under the battery cover, otherwise the battery cover may not remain water tight.
6. Evenly tighten cover screws by moving in an X pattern around the cover. Be sure to tighten the battery cover screws enough to provide adequate compression on the battery cover gasket to prevent dirt and moisture from entering the battery compartment.

Replacing the Batteries in the Heads Up Display

1. Loosen the screws to open battery door.
2. Insert two AA batteries according to the battery orientation noted inside the compartment.
3. Verify that the battery cover gasket is held in place and is free from damage and is not twisted in the gasket retention groove in the battery cover.
4. Align the battery cover to the RX housing and tighten the screws evenly from side to side. Be sure to tighten the battery cover screws enough to provide adequate compression on the battery cover gasket to prevent dirt and moisture from entering the battery compartment. Do not over tighten the screws. Do NOT use a thread sealant on the screws.

Replacing Batteries in the Clear Command Communication System

1. Loosen the thumbscrew to open battery door.
2. Insert two AAA batteries according to the battery orientation noted inside the compartment.
3. Close the battery door and tighten the thumbscrew.

~~2. Operating Procedure for Cleaning/Disinfecting the Facepiece on SCBA~~

~~A. Clean: Washing the facepiece in clean cool water and detergent is acceptable. Rinse well.~~

~~B. Disinfect: Use a 1:10 solution of bleach (one part bleach to nine parts water). Do not mix the bleach with any other type of cleaning/disinfecting agent. (See Infection Control Program 210.08).~~

Cleaning and Disinfecting

NOTE: Cleaning and disinfecting of SCBA components shall be performed using mild soap, rinsing thoroughly, submerging in a germicide solution, and air dry or wipe with a clean cloth.

Guideline

- Ensure MMR is removed from mask.
- Remove the HUD and Clear-Com from the mask.
- Remove the noseclip and rinse the facepiece and noseclip to remove gross contaminants.
- ~~Thoroughly~~ Using a mild soap, thoroughly wash the facepiece and noseclip in a cleaning solution with a sponge or soft cloth.
- Rinse components in clean warm water.
- Apply germicide: wipe; rinse thoroughly.
- Clean the exhalation valve by flushing with clean water while pressing in on stem with a blunt object.
- Wipe off excess water and let the facepiece and noseclip air dry. Do not force dry by placing near a heater or in direct sunlight.
- Clean the HUD receiver and Clear-Com with a soft cloth dampened with cleaning solution; wipe dry. Take care not to scratch or damage the LED's.

WARNING: KEEP FACEPIECE CLEAN AND CLEAR OF FOREIGN PARTICLES OR THEY WILL BE BLOWN INTO EYES WHEN REGULATOR IS TURNED ON.

ALCOHOL SHOULD NOT BE USED TO DISINFECT THE FACEPIECE AS IT WILL DAMAGE RUBBER PARTS.

~~DO NOT USE COMPRESSED AIR TO DRY FACEPIECE. ALLOW TO AIR DRY.~~

NOTE: ~~TO CLEAN THE PRESSURE DEMAND EXHALATION VALVE ON THE FACEPIECE, OPEN THE VALVE BY PRESSING IN ON THE STEM. FLUSH THE VALVE WITH CLEAN WATER. IF USER SUSPECTS THAT WATER HAS ENTERED REGULATOR, NOTIFY SCBA REPAIR TECHNICIAN.~~

Service and Repair

SCBA's and Ultra Elite Facepieces are assigned to each position on response apparatus, and to selected staff. Members that are assigned and user certified will be responsible for the proper use and function of that SCBA and facepiece. SCBA's not specifically assigned on apparatus will be checked by the Engineer of that unit.

If an SCBA or Facepiece is found to be functioning improperly, it shall be taken out of service, an equipment repair tag completed filled out and attached, and sent to Support Services for service. ~~the unit reported and replaced as soon as possible.~~ SCBA's not specifically assigned on apparatus will be checked by the engineer of that unit.

~~Members who have been issued Ultra Elite Facepieces are responsible for the proper use, function and care of that facepiece. If a facepiece is found to be functioning improperly, it shall be taken out of service, an equipment repair tag filled out and attached, and the facepiece reported and replaced as soon as possible.~~

NOTE: If a situation arises where an individual must use a facepiece other than their assigned facepiece, that facepiece shall be disinfected prior to and after use by the user.

It is the individual member's responsibility to maintain possession of his/her assigned facepiece while on duty. If a member is roving, time trading, working overtime or special events, each member is responsible for his/her facepiece being in a "ready" state with their protective clothing.

Use

All personnel shall utilize (breathe air from) the provided SCBA when encountering emergencies in the following situations:

- . Above ground level.
- . Below ground level.
- . Contaminated atmosphere.
- . Situations where it is likely that the atmosphere may become contaminated.

Some specific situations requiring the use of self-contained breathing apparatus include:

- . Vertical ventilation and/or roof operations over an involved building.
- . Car fires/dumpster fires.
- . Investigation of hazardous materials incidents.
- . Confined space entries.
- . Overhaul

Resist the tendency to prematurely remove breathing apparatus during fire or overhaul situations. ~~We all must~~ Be aware of the respiratory hazards which exist in ordinary as well as the extraordinary fire situations. It is generally true that carbon monoxide and cyanide levels increase during overhaul due to the incomplete combustion of smoldering materials.

Do not remove your SCBA until the atmosphere has been determined to be safe to operate utilizing company meters (assigned to all companies). Either use your SCBA or change the atmosphere. Refer to Policy 208.01 (CO level less than 35 PPM).

The determination as to removal of breathing apparatus will be made by company officers in routine situations. In complex situations, particularly when toxic materials are involved, the Command Officer will make this determination.

QUICK FILL SYSTEM

Quick fill fittings may be utilized to fill depleted air cylinders at an emergency scene only from an appropriate air source on a scene support/utility truck. Do not transfill air from one SCBA to another except in a life-threatening emergency or during a simulated training exercise.

1. Transfilling air from a Secondary Air Source
 - A. Cylinder valve must be on.
 - B. Remove the rubber dust cap from the male fitting on the SCBA.
 - C. Remove the rubber dust cap from the female fitting at the scene support/utility truck.
 - D. Properly align the male (on SCBA) to the female fitting (on scene support/utility) and pushing the female fitting onto the male fitting until a "click" is heard. When the female fitting is properly attached, a green ring will be visible directly behind the gray sleeve.
 - E. Transfilling will begin the instant that the female fitting is "clicked" onto the male fitting.

CAUTION: The hoses are now pressurized. If leakage is noticed from either of the fittings or hose, depressurize and correct the problem.

- F. The cylinder should fill in approximately 45-60 seconds. (A minimum a ~~4300~~ 2700 psig).
- G. Disconnect the female fitting by pulling back on the gray sleeve. An audible "hiss" or "pop" may be heard.

IMPORTANT: Immediately reinstall the dust cover on the male and female fitting. The dust cover serves to prevent debris from entering the fitting, but also provides a redundant seal to the fitting.

- H. The SCBA is now ready for service.

2. Transfiling Air from One SCBA to another SCBA.

NOTE: The SCBA with the higher pressure is the "donor" and the SCBA with the lower pressure is the "receiver".

WARNING: Do not transfill air from one SCBA to another except in a life-threatening emergency or during a simulated training exercise.

Do not attempt to transfill if the donors' audible alarm is ringing or if the donor has less than ~~2000~~ 4000 psi air. Doing so will shorten the escape time for both donor and receiver.

- A. The donor removes the 3 foot emergency transfill hose from the receiver's protective pouch and removes the dust caps from both female ends.
- B. Donor and receiver remove the dust cap from their male fittings.
- C. The donor aligns the male fitting (on receivers SCBA) to the female fitting (on emergency transfill hose) pushing the female fitting onto the male fitting until a "click" is heard. The receiver will then repeat that process on the donors SCBA. When the female fitting is properly attached, a green ring will be visible directly behind the gray sleeve.
- D. Transfiling will begin the instant that the second (donors') female fitting is "clicked" onto the male fitting completing the circuit.
- E. Equalization of the two cylinders should occur in approximately 30-60 seconds. Actual equalization time is dependent on the pressure of the donors and the receiver's cylinders.
- F. Disconnect the female fitting by pulling back on the gray sleeve. An audible "hiss" or "pop" may be heard. This should be done by both receiver and donor.

IMPORTANT: Immediately reinstall the dust cover on the male fitting. The dust cover serves to protect debris from entering the fitting, but also provides a redundant seal to the fitting.

IMPORTANT: If the male fitting is leaking excessively when you disconnect the hose and you cannot replace the dust cap, follow this procedure.

1. Attempt to reconnect the emergency transfill hose to the male fitting.
 2. If the leak is too great to reconnect the hose, reach behind you and close your cylinder valve. As the air pressure is reduced the leak will slow down. Quickly replace the dust cap onto the male fitting to form a redundant seal and turn your cylinder valve back on.
- G. ~~Evacuate immediately to a non IDLH environment. Proceed to fresh air immediately.~~
 - H. When you have reached fresh air, relieve the pressure in the emergency transfill hose by depressing the centers of one of the dust caps over the female end. This will vent the trapped air pressure. Roll up the hose and place it in its protective pouch.

FILLING PROCEDURE FOR FIXED SITE COMPRESSORS

- ~~1. Attach air cylinders to fill station, close bleeder valves, open cylinder and fill station valves slowly.~~
 - ~~2. Open #1 discharge valve slowly on control panel, let pressure equalize between air supply and SCBA bottles. Look at regulator pressure, if you are not at 2700-3000 psi, close valve #1 and open valve #2; close valve #2 and open valve #3; close valve #3, etc. until you have 2700-3000 psi on regulator pressure gauge.~~
 - ~~3. Close the last discharge valve that you opened. Close fill station and bottle valves. Bleed off air through bleeder valves and remove cylinders from fill station.~~
 - ~~4. Put #1 valve back in the open position.~~
- ~~CAUTION: Open and close all valves SLOWLY. All valves are 1/4 turn valves. Do not torque down on valve. Do not adjust pre-set regulator, severe damage will result. If any leaks are detected in breathing air system, notify SCBA Repair or Fire Maintenance.~~